(12) UK Patent Application (19) GB (11) 2 092 216 A

(21) Application No 8137389
(22) Date of filing 11 Dec 1981
(30) Priority data
(31) 8102462
(32) 31 Jan 1981
(33) Fed. Rep. of Germany (DE)
(43) Application published
11 Aug 1982
(51) INT CL³
F16B 2/22
(52) Domestic classification
E2A 352 353 370 378
415 GU
(56) Documents cited
GBA 2066887
GBA 2000545
GB 1185134
GB 0719416
(58) Field of search
E2A
(71) Applicant
A. Raymond,
postfach 2140, D—7850
Lorrach, Federal Republic
of Germany
(72) Inventors
Gian Carl Camenisch,
Gunter Wolker,
Dietrich Junemann
(74) Agents
D. Young and Co.,
10 Staple Inn, London
WC1V 7RD

(54) **Retaining clip**

(57) A clip for holding cables comprises a retaining chamber within walls (5, 6, 7) provided with an entry aperture (8). The aperture is normally closed by walls (9, 10) which overlap and which can be pushed apart to enable a cable to enter the chamber. A spring arm 11 projects into the interior of the retaining chamber to lie resiliently against the cable 16.

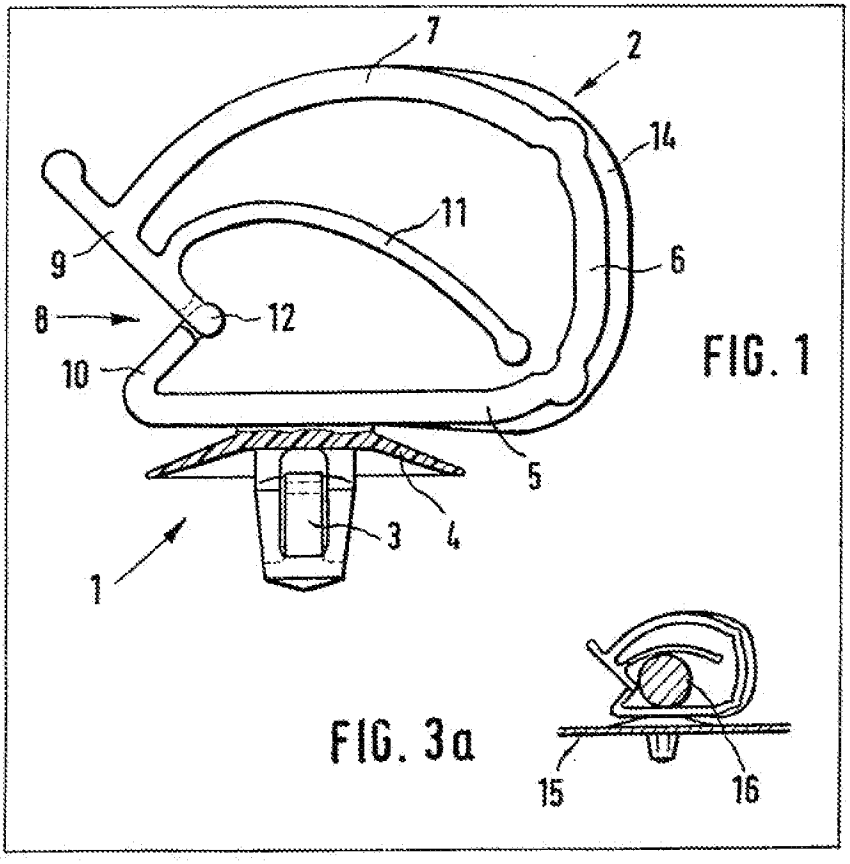


FIG. 1

FIG. 3a

GB 2 092 216 A

FIG. 1

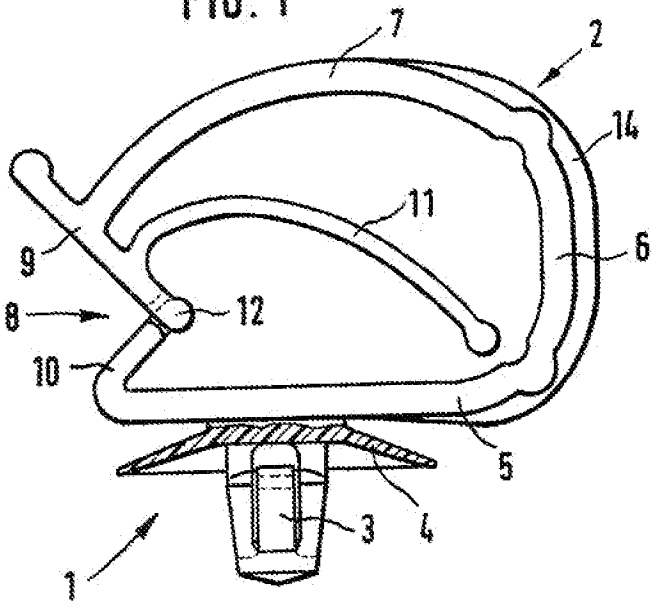


FIG. 2

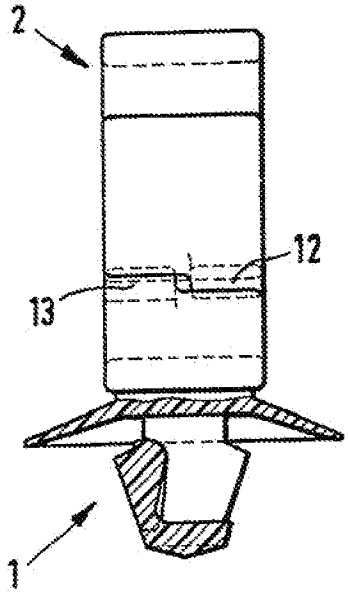


FIG. 3a

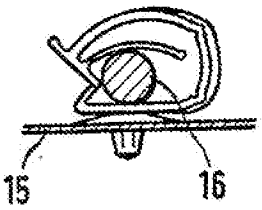


FIG. 3b

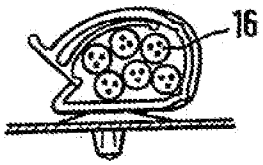


FIG. 4

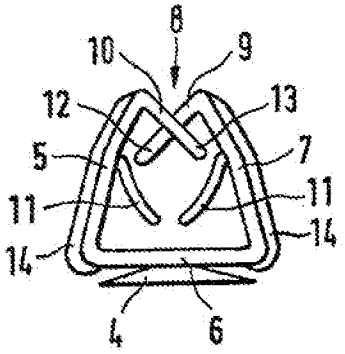
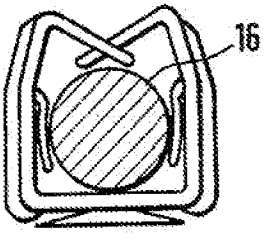


FIG. 5



SPECIFICATION

Retaining clip

This invention relates to retaining clips for fixing elongated components with different diameters, for example cable lines or bundles of cables on to supporting plates, and which comprises a foot portion provided with a fastening member and a U-shaped retaining portion surrounding a component retaining chamber, with an inlet aperture which can be opened out resiliently between entry walls directed inwardly substantially in a V-shape.

In a clip of this type, which is known e.g. from French Patent Specification 1 568 793, the purpose of the entry walls is to facilitate insertion of the cable into the retaining chamber. When a cable is pressed in, the side walls are made to yield sideways by the force components acting on the entry walls, until the cable to be inserted has passed the narrowest point. Then the side walls reclose.

The known clip is indeed very convenient to mount, because the cable lines can be pushed in easily. However, it does have the disadvantage that the retaining force is not particularly strong. When unforeseen pulling forces appear, a cable line can easily work its way back through the aperture, since the ends of the entry walls are relatively far apart and can easily be pushed apart by the rounded surface of the cable. Furthermore the clip is unsuitable for holding bundles of cables, since the individual cables are generally thinner than the narrow passage, and the entry walls cannot therefore prevent them from springing out.

In the present invention, the entry walls completely cover the aperture of the retaining chamber and at least partially overlap each other at their free ends. The effect of this arrangement is that the ends of the entry walls no longer provide a starting point for cable to push outwards; once the side walls have moved resiliently together, the aperture is safely and firmly closed and can only be opened by bending it violently apart.

Preferably, for manufacturing reasons, the entry walls may each have an elongated end, arranged alternately opposite over approximately half the width of the wall, with the shorter half of each entry wall ending close before the other, opposed wall half, while the elongated ends extend past one another.

Two embodiments of the invention are illustrated in the accompanying drawings and will be explained in detail below. In the drawings:—

Figure 1 is a side elevation on an enlarged scale of a retaining clip according to the invention.

Figure 2 is a front elevation thereof, with a partial cross-section through the fastening foot.

Figure 3 shows a retaining clip mounted on a supporting plate

a) with a single cable inserted,

b) with a bundle of cables inserted,

Figure 4 shows a side elevation of a second embodiment of the invention where the cable is inserted vertically, and

Figure 5 shows the same clip with the cable inserted.

The retaining clip illustrated in Figures 1 to 3 substantially comprises a foot portion 1 and a retaining portion 2. The function of the foot portion 1 is to anchor the clip in a hole in a supporting plate 15. For this purpose it is provided with fastening members 3 which can be moved resiliently together, and a supporting flange 4. Since the foot is not the subject of the invention it will not be described in detail. However, it should be mentioned that other appropriate forms of fastener, which anchor the retaining clip securely on the supporting plate, may also be used.

The retaining portion 2, which accommodates cable lines 16 or bundles of cable, is formed by three side walls 5, 6 and 7 which are joined together in a U-shape, the lower side wall 5 being integral with the foot portion 1. At the open side of the retaining portion 1 there is an inlet aperture 8 which can be opened resiliently, with entry walls 9 and 10 directed inwardly substantially in a V-shape from the free ends of the side walls 5 and 7; the upper entry wall 9 is extended outwardly a certain distance beyond the side wall 7. A spring arm 11 is moulded onto the inside of the upper entry wall 9. This projects into the interior of the clip so that it can spring upwards, and its function is to lie resiliently against the cable 16.

As will be seen from Figure 1, the entry walls 9 and 10 completely cover the inlet aperture 8, and at their ends 12 and 13 they even partly overlap, to the extent of their wall thickness. As shown in Figure 2, the right hand half of the upper entry wall 9 and the left hand half of the lower entry wall 10 are extended, so that the shorter halves of the walls 9 and 10 each end close against the opposed elongated halves 12 and 13.

A central rib 14 is moulded onto the outside of the side walls 5, 6 and 7 and primarily gives the retaining portion 1 the necessary bending strength. In addition to this function, the rib 14 causes the ends 12 and 13 of the entry walls, which in the cast state are still one above the other, to move past one another after demoulding.

In the retaining clip shown in Figures 4 and 5 the cable 16 in inserted from above. In this clip the entry walls 9 and 10 are crossed over somewhat more than in the embodiment shown in Figures 1 to 3. This guarantees that, even when cables with fairly large diameters are pressed in, the ends 12 and 13 of the entry walls 9 and 10 will still remain crossed over. The purpose of the spring arms 11 mounted on the two side walls 5 and 7 is to keep the inserted cable 16 exactly in the centre of the clip.

In general the clips are moulded in one piece from a hard resilient plastics material.

CLAIMS

1. A retaining clip for fixing elongated components on to supporting plates, and comprising a foot portion provided with a fastening member and a U-shaped portion surrounding a component retaining chamber, with

an inlet aperture which can be opened out resiliently, at least one spring arm projecting into the interior of the chamber and entry walls to the inlet aperture directed inwardly substantially in a V-shape, wherein the entry walls normally completely cover the aperture and at least partially overlap each other at their ends.

2. A retaining clip according to claim 1, wherein the entry walls each have an elongated end arranged alternately opposite one another over approximately half the wall width, the shorter half of each entry wall ending close against the opposed entry wall, while the elongated ends extend past one another.

3. A clip according to claim 1 or 2 wherein the inlet aperture is arranged so that the components enter the chamber substantially at right angles to the axis of the fastening member.

4. A clip according to claim 1 or 2 wherein the inlet aperture is arranged so that the components enter the chamber towards the fastening member.

5. A retaining clip constructed and arranged substantially as hereinbefore described and shown in Figures 1—3 or 4 and 5 of the accompanying drawings.

Printed for Her Majesty's Stationery Office by the Courier Press, Leamington Spa, 1982. Published by the Patent Office, 25 Southampton Buildings, London, WC2A 1AY, from which copies may be obtained.